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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,040	08/13/2001	Christopher Robert Eccles	13121US01	9447

7590 09/23/2002

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EXAMINER

PALABRICA, RICARDO J

ART UNIT PAPER NUMBER

3641

DATE MAILED: 09/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/830,040

Applicant(s)

ECCLES, CHRISTOPHER
ROBERT

Examiner

Rick Palabrica

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 5,20,21,23,27,30 and 33-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-19,22,24-26,28,29,31 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election without traverse of Group IA, species Ic, tungsten for cathode, platinum for anode, water for electrolyte and the only reactive ingredient consumed by the reaction, metal hydride formed on an electrode which dissociates to form hydrogen atoms, and fusion pathway of $D + D = T + H$., in paper No. 10, is acknowledged. This election is in response to a February 25, 2002 Office Action.
2. Following a telephone call by the examiner to the attorney for applicant advising that the elected electrolyte is inconsistent with the elected fusion pathway, the attorney indicated in a telephone reply on May 17, 2002 that the electrolyte election should be changed from water to deuterated water.
3. Applicant's further election without traverse of species E (embodiment in Fig. 4) and species H (wherein the voltage is provided at a switching frequency of up to 100 kHz), in paper No. 11, is also acknowledged. This further election is in response to the Office Action dated June 10, 2002.
4. Applicant indicated in Paper No. 11 that claims 1-4, 6-19, 22, and 24-32 read on the elected species. Examiner's review of these claims, however, revealed that claims

27 and 30 do not read on the elected species. Accordingly, only claims 1-4, 6-19, 22, 24-26, 28, 29, 31 and 32 are examined in this Office Action.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Specification

5. The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to provide an adequate written description of the invention and as failing to adequately teach how to make and/or use the invention, i.e., failing to provide an enabling disclosure.

The claimed invention is a method for energy generation by providing an electrolyte containing a catalyst and generating a plasma discharge by applying a voltage across electrodes in the electrolyte. This production of energy by "electrochemically-induced nuclear fusion reactions" that has become known in the art as "cold fusion."

As set forth more fully below, the disclosure does not contain reputable evidence that is sufficient to support any allegations or claims that the invention produces

"nuclear reactions" are valid and reproducible, nor that the invention as disclosed is capable of operating as indicated and capable of providing the intended output.

This concept of producing nuclear reactions by "cold fusion" was in general, publicly announced by Fleischmann and Pons (hereinafter referred to as "F and P") on March 23, 1989 (see the 3/24/89 article by D. Braaten). Applicant's invention is thus, at most, no more than a variation of the cold fusion concept or system set forth by F and P.

As set forth more fully below, this "cold fusion" concept of producing nuclear reactions, is still no more than just an unproven concept.

Subsequent to the announcement of this cold fusion concept by F and P, many laboratories have attempted to confirm the results of F and P.

The results of these attempts at confirmation were primarily negative and even of the few initial positive results, these were generally either retracted or shown to be in error by subsequent experimenters (e.g., see the article by Stipp in the Wall Street Journal and the article by Browne in The New York Times (particularly page A22)).

The general consensus by those skilled in the art and working at these various laboratories is that the assertions by F and P were based on experimental errors (e.g., see The New York Times article by Browne, Kreysa et al., Lewis et al., Hilts, Horanyi, Ohashi et al., MisKelly et al. and Chapline).

Note for example, that Kreysa et al. on page 440 state that , "We have repeated the heat balance measurements more than 10 times and never found a significant heat excess within the accuracy limits of $\pm 5\%$." Kreysa et al. also refer to various possible sources of error, which could lead to erroneous conclusion that nuclear reactions and excess heat were produced.

Hilts states that the MIT experiments failed to produce any of the excess heat reported by the Utah group.

Lewis et al. state in the summary on page 525 that they found no evidence of excess enthalpy in their experiments and, they refer to various possible sources of error which could lead to the erroneous conclusion that nuclear reactions and excess heat were produced (note pages 528-530).

Both Hilts and Lewis et al. indicate that in any determination of excess heat, one must determine the total amount of energy produced (as heat and chemical energy) integrated over the whole period of cell operation, versus the total energy input.

It was also the general consensus by those skilled in the art and working at these various laboratories that there is no reputable evidence of neutron, gamma ray, tritium or helium production to support the allegation or claim that nuclear reactions are taking place, nor is there any reputable evidence to support the allegation or claim of excess heat production. See for example (in addition to the above listed references) page A14 of the 7/13/89 edition of The Washington Post, Cooke, Alber et al., Faller et al, Cribier et al., Hajdas et al., Shani et al., Ziegler et al., Price et al., Schrieder et al., and pages A3 of the 3/29/90 edition of The Washington Post.

Of particular interest is page A3 of the 3/29/90 edition of The Washington Post that refers to the negative findings of a physicist who had tested Pon's own cold fusion apparatus for nuclear output (for a more complete analysis of said "negative findings", note the article by Salamon et al.). Also of interest in this respect is the Cooke reference which, on pages 4 and 5, refers to the attempts at Harwell to obtain "cold fusion" and that Fleischmann (of F and P) had requested help from Harwell in verifying the cold fusion claims. Said page 5 also indicates that data was collected in Frascati-type (i.e. gaseous) experiments.

The last paragraph on said page 5 states:

"After three months of around-the-clock work at a cost of over a half million dollars, the project was terminated on June 15. This program is believed to be one of the most comprehensive worldwide with as many as 30 cells operating at a time and over 100 different experiments performed. The final results of this monumental effort in the words of the official press release was, " In none of these experiments was there any evidence of fusion taking place under electrochemical conditions". It should also be added that there was no evidence of excess heat generated by any of their cells."

(Underlining added).

Applicant's specification contains assumptions and speculation as to how and in what manner, his invention will operate. However, applicant has presented no reputable factual evidence to support his assumptions and speculation regarding a reproducible, sustainable cold fusion and low temperature reaction.

Note in this respect that the examiner (as set forth above) has presented documentary evidence that there are no operative cold fusion systems that actually produce the nuclear reaction.

The disclosure is thus insufficient and non-enabling as to exactly what all is necessary to actually present a reproducible, sustainable cold fusion and low temperature nuclear reaction, and, as to what would cause such reactions to actually take place in the applicant's system.

On page 4, lines 9+ of the specification, the applicant discloses an apparatus for carrying out the claimed invention comprising an reaction vessel with an "electrolyte having a catalyst therein suitable for initiating transitions of hydrogen and/or deuterium

atoms in the electrolyte to a "sub-ground energy state." However, there is neither an adequate description nor enabling disclosure of how and in what manner said catalyst so produces said transitions. Also, the disclosure is insufficient as to providing technical support for the claimed existence of said "sub-ground energy state" by either unambiguous experimental evidence or general acceptance by the scientific community.

On page 5, lines 1+, the applicant discloses that in equation (2) showing the relationship between the electron wavelength and allowed radii, n can have values equal to $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, etc. There is neither an adequate description nor enabling disclosure to justify that fractional values of n are allowed. The disclosure is insufficient as to what exactly are the conditions to be met in order that fractional values of n would be "allowed."

On page 5, starting from the fourth to last line, the applicant discloses that at the excited states, the effective nuclear charge becomes $Z_{\text{eff}} = Z/n$. The disclosure is insufficient as to: a) what exactly is meant by the term, "effective nuclear charge"; and b) what exactly is the basis for the "effective nuclear charge" being a multiple of Z .

On page 6, lines 16+, the applicant discloses that "to maintain force balance, transitions involving fractional values for n must effectively increase the nuclear charge to a figure Z_{eff} , and reduce the radius of electron-path accordingly. The disclosure is insufficient as to: a) what exactly is the basis for transitions involving fractional values of n ; b) what exactly are the conditions that will provide for said "fractional transitions"; c) what exactly is the basis for the increase in the nuclear charge; d) how exactly does said nuclear charge increase, i.e., does the number of protons in the nucleus increase, and, if so, where does this additional proton come from? e) how exactly does one know that the radius of the electron path decreases and by how much exactly will said radius decrease?

On page 6, 2nd full paragraph, the applicant discloses a discovery that transitions to the sub-ground state can be induced if the atom is in close proximity of another system which acts as a "receptor-site" for the exact energy quantum required to effect the transition. The disclosure is insufficient as to: a) what exactly is this so-called "another system"; b) what exactly is "close proximity"; c) how exactly is said "close proximity" achieved and verified that it has been achieved; d) what exactly is meant by "receptor-site"; e) how exactly does one determine the required "exact energy quantum" for a given atom; f) how exactly does one verify that the so-called "transition" has occurred.

On page 6, last paragraph, the applicant discloses transitions from the ground state may occur repetitively and possibly transitions to $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, etc. may occur as a single event "if the energy balance of the atom and the catalytic system is favourable." The disclosure is insufficient as to what exactly are these "favourable" conditions.

On page 7, lines 2+, the applicant discloses that when the "ground-state" hydrogen atom emits a photon of around 27eV, the transition occurs to the a_0 state "as demonstrated" above and the effective nuclear charge increase to +2e. The disclosure is insufficient as to: a) what exactly is meant by the term " a_0 state"; b) what exactly would cause the hydrogen atom to emit said energy; c) why exactly would the effective nuclear charge increase to +2e.

On page 7, lines 17+, the applicant discloses that about 27eV is emitted as the catalytic transfer of energy occurs and the remaining 14 eV is emitted on reestablishment to the force balance. The disclosure is insufficient as to: a) what exactly is meant by "catalytic transfer of energy"; b) what exactly is meant by "reestablishment to the force balance"; c) what exactly are the conditions to allow so called catalytic transfer and

reestabilisation to force balance; d) how exactly does one know whether said catalytic transfer and reestabilisation have occurred.

On page 9, lines 8+, the applicant discloses that one catalyst that has been found to initiate the transition to the a_0/n state is rubidium. There is neither an adequate description nor enabling disclosure to provide support, e.g., by unambiguous experimental evidence, that said catalyst so initiates the transition to the sub-ground state.

On page 9, 2nd to last paragraph, the applicant discloses that titanium and potassium are other catalysts that can initiate the transition to the a_0/n state is rubidium. There is neither an adequate description nor enabling disclosure to provide support, e.g., by unambiguous experimental evidence, that said catalysts so initiate the transition to the sub-ground state.

Applicant's claimed method of low temperature electrolytic nuclear reactions is practiced on an apparatus of non-cold fusion art (e.g. Patterson [U.S. 5,635,038], hereinafter referred to as Patterson-1, or Patterson [U.S. 5,607,563], hereinafter referred to as Patterson-2) that is identical to the applicant's, and, these apparatuses are all operated in an identical manner, i.e., the application of a voltage across electrodes in an electrolyte having a catalyst.

Note that it is well-settled case law that identical apparatuses operated in the same manner, must produce identical results.

There is accordingly, neither an adequate description nor enabling disclosure of how and in what manner, applicant's invention is able to produce low temperature electrolytic nuclear reactions, the identical systems and methods of operation in either one of Patterson-1 or Patterson-2, presumably did not produce said low temperature electrolytic nuclear reactions.

Assuming for the sake of argument that applicant's invention does function in a different manner to produce a different result from that of either one of Patterson-1 or Patterson-2, it can only be because applicant's invention actually contains some additional critical feature(s), component(s), etc., not found in any of said references which is necessary to enable applicant's invention to function differently from any of said references so as to be able to produce a different result.

Accordingly, the disclosure is insufficient in failing to disclose said additional critical feature(s), component(s), etc., necessary to cause applicant's invention to operatively function in a different manner to produce a result different from that of said references.

Clearly, when an artisan or experimenter is relying on the experimental results of particular tests or experiments to establish certain facts, i.e., the production of excess heat and of low temperature nuclear reactions, it is incumbent upon the experimenter to show that the alleged experimental results of excess heat and low temperature nuclear reactions, are valid and not just the results of experimental errors or misinterpretations of experimental data (and that the alleged experimental results do not fall within the limits of experimental errors).

There is thus no reputable evidence of record to support the assumption and speculation that the invention would actually operate as indicated and produce the desired results as indicated.

It is not seen wherein the specification discloses any particular structure, etc., which is unique to the applicant's system and which would make the applicant's cold fusion system operative whereas the systems disclosed in the above referenced "numerous teachings by skilled artisans," were not operative.

There is neither an adequate description not enabling disclosure of the parameters of a specific operative embodiment of the elected invention, including required concentration and purity of the electrolyte and the catalyst in the chamber; dimensions of the cathode and anode relative to each other and relative to the size of the chamber, purity of the cathode and anode materials, required strength of magnetic field produced by winding around the chamber; required flow rate of electrolyte, required purity of the material of construction of the chamber, etc. Note that control of impurity levels of the materials in contact with the electrolyte is a critical factor in nuclear fusion reactions such as those in the claimed invention.

It is apparent from the specification that applicants' concept or theory involves a "cold fusion" system based on the "cold fusion" systems that came about from the work of F and P, is workable or operative, only if these systems are already operative.

However, as set forth above, the examiner has presented evidence showing that in such cold fusion systems, the claims of excess heat (as well as of other nuclear reaction products), are not reproducible or even obtainable. It consequently must follow that the claims of excess heat or nuclear reactions are not reproducible or even obtainable with applicant's invention. While applicant may have set forth theoretical concepts, it is well known in the cold fusion field that theory and reality have a habit of not coinciding. There is no evidence to indicate that the applicant has so succeeded where others have failed, in arriving at an operative cold fusion system, i.e. that he has progressed his system beyond the point of an unproven theory or concept which still requires an undue amount of experimentation to enable the artisan to make and use the inventive system for its indicated purpose. This view is also considered supported by the failure to set forth a full example of the specific parameters of an operative embodiment. One cannot rely on the skill in the art for the selection of the proper

quantitative values to present an operative cold fusion system, since those in the art do not know what would be these values. See Bank v. Rauland Corp., 64 U.S.P.Q. 93; In re Corneil et al., 145 U.S.P.Q. 697.

To reiterate briefly, the examiner has presented evidence that nuclear reaction products can reasonably be expected to be reproducible or even obtainable with the present invention.

There is no reputable evidence of record that would overcome the experimental showings in the above listed references, disproving this concept of "cold fusion".

Again, there is no evidence to indicate that the applicant has so succeeded where others have failed, in arriving at an operative system that produces nuclear fusion, i.e., that he has progressed his system beyond the point of an unproven theory of concept which still requires an undue amount of experimentation to enable the artisan to make and use the invention for its indicated purpose.

It is thus considered that the examiner (for the reasons set forth above) has set forth a reasonable and sufficient basis for challenging the adequacy of the disclosure. The statute requires the applicant itself to inform, not to direct others to find out for themselves; In re Gardner et al., 166 U.S.P.Q. 138, In re Scarborough, 182 U.S.P.Q. 298. Note that the disclosure must enable a person skilled in the art to practice the invention without having to design structure not shown to be readily available in the art; In re Hirsch, 131 U.S.P.Q. 198.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-4, 6-19, 22, 24-26, 28, 29, 31 and 32 are rejected under 35 U.S.C. 101 because the claimed invention as disclosed is inoperative and therefore lacks utility.

The reasons that the inventions as disclosed is inoperative are the same as the reasons set forth in section 5 above as to why the specification is objected to and the reasons set forth in section 5 above are accordingly incorporated herein.

There is no reputable evidence of record to indicate the invention has been reduced to the point of providing in current available form, an operative cold fusion system. The invention is not considered as meeting the requirements of 35 U.S.C. 101 as being "useful". Note in this respect, Page A14 of the 7/13/89 edition of The Washington Post which indicates that there is no convincing evidence that the "phenomena attributed to cold fusion would produce useful sources of energy".

The applicant at best, has set forth what may be considered a concept or an object of scientific research. However, it has been held that such does not present a utility within the meaning of 35 U.S.C. 101. See Brenner v. Manson, 148 U.S.P.Q. 689.

Additionally, it is well established that whereas here, the utility of the claimed invention is based upon allegations that border on the incredible or allegations that

would not be readily accepted by a substantial portion of the scientific community, sufficient substantiating evidence of operability must be submitted by applicant. Note In re Houghton, 167 U.S.P.Q. 687 (CCPA 1970); In re Ferens, 163 U.S.P.Q. 609 (CCPA 1969); Puharich v. Brenner, 162 U.S.P.Q. 136 (CA DC 1969); In re Pottier, 152 U.S.P.Q. 407 (CCPA 1967); In re Ruskin, 148 U.S.P.Q. 221 (CCPA 1966); In re Citron, 139 U.S.P.Q. 516 (CCPA 1963); and In re Novak, 134 U.S.P.Q. 335 (CCPA 1962).

Claim Rejections - 35 USC § 112

7. Claims 1-4, 6-19, 22, 24-26, 28, 29, 31 and 32 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The reasons that the inventions as disclosed are not enabling are the same as the reasons set forth in section 5 above as to why the specification is objected to and the reasons set forth in section 5 above are accordingly incorporated herein.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3, 6, 7, 9-19, 22-25, 28, 29 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Mills et al. (U.S. 6,024,935). Mills et al. Disclose methods and apparatus for releasing energy from hydrogen atoms (molecules) by stimulating their electrons to relax to quantized lower energy levels and smaller radii (smaller semimajor and semiminor axes) that the "ground state" by providing energy sinks or means to remove energy resonant with the hydrogen energy released to simulate these transitions (see abstract).

Said claims are disclosed by Mills et al., for example, in embodiments shown in Figs. 1-9. The energy reactor shown in Fig. 5 comprises a vessel 52 containing an energy reaction mixture of hydrogen isotope, a heat exchanger 60, a magnetic field and electric field generator 75 (see column 26, lines 27+). Other components are shown in detail in Fig. 6, for example, include a power controller that provides voltage between a nickel cathode and a platinum anode. This controller provides a square wave with a duty cycle of between 0.05 to 0.90 and a frequency in the range of 1Hz to 1500 Hz (see column 32, lines 40+).

9. Claims 1, 2, 10, 13, 22, 24, 25, 28, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Patterson-2. They disclose an electrolytic cell comprising an anode and a cathode formed of platinum or nickel (see Fig. 2 and column 3, lines 54+).

The electrolyte comprises deuterium with a conductive salt in solution of potassium (see column 4, lines 45+).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference D further illustrates prior art.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

RJP
September 17, 2002


MICHAEL J. CARONE
SUPERVISORY PATENT EXAMINER